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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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01/23/2002

Richard T. Reel

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APPLIED BIOSYSTEMS
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EXAMINER

REIS, TRAVIS M

ART UNIT

PAPER NUMBER

2859

DATE MAILED: 01/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.		Applicant(s)	
	10/055,517		REEL, RICHARD T.	
	Examiner		Art Unit	
	Travis M Reis		2859	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 October 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 30-53 is/are pending in the application.
- 4a) Of the above claim(s) 43-52 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 30-42 and 53 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 January 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

- 43-52 ✓
1. Newly submitted claims ~~30-42 & 53~~, directed to an invention that is independent or distinct from the invention originally claimed; since these new claims are directed to a method & apparatus of detecting fluorescence from a sample in a channel plate by collecting the fluorescence image of the sample on a detector.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. However, newly submitted claims 43-52 are directed to a method & apparatus of detecting fluorescence from a sample in a channel plate by collecting the fluorescence image of the sample on a detector and the fluorescence image from the channel plate, which in the prior action was deemed to be no longer directed to the originally claimed invention and considered non-responsive. Accordingly, claims 43-52 are withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 30 & 53 are rejected under 35 U.S.C. 102(b) as being anticipated by Yeung et al. (U.S. Patent 5324401).

With reference to claims 30 & 53, Yeung et al. disclose a method for detecting the fluorescence of a fluorescent sample in a channel plate (Figure 2) comprising having a

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channel axis, through which a sample can flow, providing an excitation beam of light into the fluorescent sample and channel plate (col. 4 lines 3-4), wherein the excitation beam of light produces a fluorescence image from the sample and fluorescence image from the channel plate (col.4 lines 5-6) positioning the excitation beam of light (i.e. varying the angle of incidence) to increase the special resolution between the fluorescence image of the sample and the fluorescence image of the channel plate (col. 8 lines 33-36); and collecting the fluorescence image of the sample on a detector (col. 4 lines 26-32), said detector being a charge couple device (Abstract) with a plurality of detector elements, (col. 3 line 32).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claim 31 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yeung et al.

Yeung et al. disclose all of the instant claimed invention as stated above in the rejection of claims 30 & 53, including that although 45° is preferred, the angle of incident light can be varied (col. 8 lines 55-59).

Yeung et al. do not disclose explicitly that the angle be less than or equal to about 20° relative to a channel axis of the channel plate. However, to choose an angle less than or equal to about 20°, absent any criticality, is only considered to be the " optimum " value of the excitation angle, as stated above, that a person having ordinary skill in the art would have been able to determine using routine experimentation based, among other things, on the desired accuracy and since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. See *In re Boesch*, 205 USPQ 215 (

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CCPA 1980). Therefore, it would have been obvious to one with ordinary skill in the art at the time of the invention was made to use an angle less than or equal to about 20° in the invention of Yeung et al. in order that better fluorescence images are produced.

6. Claims 35, 37-39, 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yeung et al. in view of Van Gelder (U.S. Patent 5424841).

With reference to claims 35, 37, & 38, Yeung et al. ^{col} & ~~Van Gelder~~ disclose all of the instant claimed invention as stated above in the rejection of claims 30 & 53, but do not disclose directing the excitation beam of light substantially parallel to the channel plate into a reflective mirror.

Van Gelder discloses a mirror (26) for directing the excitation beam parallel to the channel plate (Figure 1). Therefore, it would have been obvious to one with ordinary skill in the art at the time of the invention was made to add the mirror disclosed by Van Gelder to the channel plate disclosed by Yeung et al. in order that the path of the excitation beam could be better controlled.

With reference to claim 39, Yeung et al. disclose all of the instant claimed invention as stated above in the rejection of claims 30 & 53, including a collection optics system (col. 4 lines 26-29), wherein the collection optics system collects the fluorescence and refocuses the fluorescence onto a detector (col. 4 lines 29-32).

Yeung et al. does not disclose the collection optics further removes scattered light from the excitation beam using a long pass filter or a band pass filter.

Van Gelder discloses an apparatus for measuring spatial distribution of fluorescence on a substrate which utilizes both long pass and band pass filters (Abstract). Therefore, it would have been obvious to one with ordinary skill in the art at the time of the invention was made to add the long pass and band pass filters disclosed by Van Gelder to the collection

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optics disclosed by Yeung et al. in order to better remove excess wavelengths of light.

With reference to claim 42, Yeung et al. disclose said light source is a laser (40) (Figure 1).

7. Claims 32, 35-38, 40, & 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yeung et al. in view of Hoff et al. (U.S. Patent 5543026).

With reference to claims 32, Yeung et al. discloses all of the instant claimed invention as stated above in the rejection of claims 30 & 53, including the light source is a laser (40) (Figure 1), and a collection optics system (col. 4 lines 26-29), wherein the collection optics system collects the fluorescence and refocuses the fluorescence onto a detector (col. 4 lines 29-32).

Yeung et al. do not disclose the collection optics system collimates the fluorescence and refocuses the fluorescence onto a detector.

Hoff et al. disclose a real time scanning fluorescence electrophoresis apparatus for the analysis of polynucleotide that uses an aspheric collection lens (74) to collimate light in the direction of the detector to reduce the level of scattered light entering the detector (col. 5 lines 6-8). Therefore, it would have been obvious to one with ordinary skill in the art at the time of the invention was made to add the aspheric collection lens that collimates light taught by Hoff et al. to the collection optics disclosed by Yeung et al. in order to reduce the level of scattered light.

With reference to claims 35-38, 40, & 41, Yeung et al. disclose all of the instant claimed invention as stated above in the rejection of claims 30 & 53, but do not disclose a reflective mirror, prism, or transmission defraction grading for spectractly separating the fluorescence emission light.

Hoff et al. disclose turning mirrors (68) and that prisms and transmission defraction

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grading are common components for a detector of this type (col. 4 line 15). Therefore, it would have been obvious to one with ordinary skill in the art at the time of the invention was made to add the turning mirrors, prism, and transmission defraction grading taught by Hoff et al. to the detector disclosed by Yeung et al. in order to spectrally separate the fluorescence emission light.

8. Claims 33 & 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yeung et al. & Hoff et al. as applied to claims 32, 35-38, 40, & 41 above, and further in view of Van Gelder.

Yeung et al. & Hoff et al. disclose all of the instant claimed invention as stated above in the rejection of claims 32, 35-38, 40, & 41, but does not disclose the collection optics further removes scattered light from the excitation beam using a long pass filter or a band pass filter.

Van Gelder discloses an apparatus for measuring spatial distribution of fluorescence on a substrate which utilizes both long pass and band pass filters (Abstract). Therefore, it would have been obvious to one with ordinary skill in the art at the time of the invention was made to add the long pass and band pass filters disclosed by Van Gelder to the collection optics disclosed by Yeung et al. & Hoff et al. in order to better remove excess wavelengths of light.

Response to Arguments

9. Applicant's arguments filed that Yeung et al. does not teach positioning an excitation beam of light to increase the spatial resolution between the fluorescent images from a channel plate and sample have been fully considered but they are not persuasive since Yeung et al. discloses varying the angle of incidence of the light beam, and hence the spatial resolution between the images, as detailed above in paragraph 3.

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10. Applicant's arguments filed that Van Gelder does not teach positioning an excitation beam of light to increase the spatial resolution between the fluorescent images from a channel plate and sample have been fully considered but they are not persuasive since the Yeung et al. reference teaches this feature; and since the Van Gelder reference is cited to teach other features as detailed in paragraphs 6 & 8, it is not necessary for Van Gelder to teach the positioning of an excitation beam of light to increase the spatial resolution between the fluorescent images from a channel plate and sample.

Conclusion

11. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Travis M Reis whose telephone number is (703) 305-4771. The examiner can normally be reached on 8--5 M--F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diego Gutierrez can be reached on (703) 308-3875. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306 for all

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communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Travis M Reis
Examiner
Art Unit 2859

tmr
January 22, 2004



Diego Gutierrez
Supervisory Patent Examiner
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CHRISTOPHER W. FULTON
PRIMARY EXAMINER